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CORSnet-NSW Adjustable Antenna Mount (CAAM) for GNSS CORS

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Abstract

Global Navigation Satellite System (GNSS) Continuously Operating Reference Station (CORS) networks are being built and expanded around the world, contributing to the definition and realisation of geodetic reference frames as well as providing reliable and accurate positioning infrastructure for a wide range of applications. Depending on the purpose of the GNSS station, CORS antenna monuments vary from concrete pillars anchored to bedrock to masts attached to buildings. An antenna mount is then used to connect the GNSS antenna to the monument. In all cases it is desired to orient the CORS antenna to True North in order to gain maximum benefit from GNSS antenna modelling. Other requirements generally include the unambiguous definition of the survey mark below the antenna (supporting a clear definition of the Antenna Reference Point, ARP), a zero or minimal antenna height above the monument, and the use of a truly vertical 5/8th Whitworth thread spigot. This poster introduces the CORSnet-NSW Adjustable Antenna Mount (CAAM), developed by NSW Land and Property Information (LPI) for CORSnet-NSW, LPI's rapidly growing GNSS CORS network covering the state of New South Wales, Australia. The CAAM was purposely designed to be incorporated into (rather than simply attached to) antenna masts located on buildings or free-standing pole monuments but can also be used for pillar monuments. Being free of removable parts, it is adjustable in order to orient the antenna to True North without introducing an antenna height, thereby allowing a clear definition and maximum traceability of the survey mark and the ARP.